SCREENING-RATING-RANKING AND FACT SHEETS

Business of Transportation and Industrial Development

Introduction

This technical report discusses the methodologies used in screening, rating, and ranking business candidates in the industrial development and business of transportation categories. This memorandum also provides fact sheets that summarize the development requirements of each category found to be preliminarily feasible. This document is divided into two sections, each with their separate attachments. Section 1 addresses opportunities in the business of transportation and Section 2 discusses opportunities for industrial development. This section approach was used because screening and feasibility criteria are different for each set of opportunities. Screening processes are discussed in the following document, and criteria have been previously discussed in Technical Memorandum #1: Feasibility Criteria.

Separate Focus on Transportation and Industrial Development

The scope of this feasibility study includes a wide array of economic development opportunities that are being tested as to the best interests of the State of Washington and/or the Port of Benton. Industrial, commercial and other economic development potential are extremely important elements being considered. But the State and Port have identified transportation as a primary interest. This interest is driven by the development potential presented by the unique location of the Hanford properties and facilities in relation to the State's transportation network and the 124-mile Reservation Railroad. The combination of existing land, facilities, highway and rail access (including the Union Pacific and Burlington Northern Santa Fe Railroads) as well as the potential for developing a new mainline rail route through the Reservation has been considered a valuable package of assets.

As a result, Industrial Development opportunity screening is separately addressed. However, the industrial screening has included a feasibility factor for meeting transportation requirements of the industries being considered. The transportation requirements are an element of transportation business, however when expressed as industry support, they are more effectively evaluated as a demand for service, rather than an opportunity for transportation business. Transportation requirements and the ability to meet those demands, as well as the transportation business that may produce, will be addressed as part of detailed analyses and in the coordinated plan.

Therefore, the broader value of the Hanford site has been maintained by identifying and considering "business of transportation" opportunities and "industrial development" opportunities separately.

Section 1: Business of Transportation

Candidate Opportunities

Development of candidate opportunities for consideration were gathered from the original scoping of the study, reviews of previous freight mobility studies, transportation knowledge and experience of the consulting team, and input from industry representatives, stakeholders and the Oversight Panel. Generally, it was found that the range of opportunities for the Business of Transportation were limited and an exhaustive search was unnecessary. Several concepts for using the Hanford transportation assets were established originally as focus items in scoping of the study:

- Intermodal Hub
- E-W Rail Route Improvements
- National Strategic Freight Corridor
- Inland Port Facility for Washington Seaports
- Moses Lake Asset Integration

Other candidates identified included barge operations, automobile distribution, commodity consolidation, rail equipment repair, air operations center, air freight distribution, regional freight corridor, rail services center, trucking service center, freight tracking center, dispatch and control center and rail equipment/container storage, staging and dispatch center.

Initial Screening

Elimination screening consisted principally of eliminating fringe concepts and those that duplicated existing transportation capacity or specifically competed against existing business.

Several options as indicated in the scope were integrated into other options. For example: the specified issue of Moses Lake Asset Integration was screened in combination with the E-W Rail Route Improvements. The broadly used term "Intermodal Hub," was not separately screened as a transportation opportunity but its nominal meaning of center for modal changes of freight is included within other alternatives. This term is being defined in Phase II as it relates to "Intermodal Center" and "Inland Port" and their relationship to population centers.

Preliminary Feasibility Candidates

There were nine candidates tested against Preliminary Feasibility Criteria within the Business of Transportation. Those nine, along with a brief description (see attached Fact Sheets for additional detail) are as follows:

- **Eastern Washington Export Consolidation and Shipment Center**
  A Centralized location for receiving and intermodal transfer of containerized agricultural products for rail movement to Ports of Seattle and Tacoma.

- **Transportation Services Center: Rail Equipment/ Empty Container Center**
  An enroute facility for storing, staging and dispatching railroad double stack rail cars and empty containers for the Ports of Seattle and Tacoma.

- **Transportation Services Center: Rail Servicing**
  An enroute facility for providing rail operations, support services such as fueling, inspection, maintenance, repair, crew rest, crew change, dispatch arrival/departure trackage and temporary train storage and staging.

- **Domestic Automobile Distribution Center**
  A centralized, consolidated regional domestic automobile center for mass receiving by rail, storage, component additions, staging and intermodal transfer to trucking for Pacific Northwest distribution network.

- **Rail Equipment Repair and Rehabilitation Center**
  A center to provide cost-effective repair, rehabilitation and overhaul of locomotives and rail cars and virtually unlimited storage and staging facility for railroad equipment undergoing those services.

- **Inland Operational Support to Washington Seaports**
  A support center to provide storage, staging and distribution facilities for international container cargoes in direct support of Washington seaports of Seattle and Tacoma.

- **Transportation Services Center, National Strategic Freight Corridor**
  The freight corridor center will provide transportation service center support to highway and rail traffic traversing a potential Federally designated "National Strategic Freight Corridor."

- **East-West Rail Route Improvements**
  The route improvements will provide additional rail capacity, shortened routes, and relief for grade crossing impacts, bypassing of rail congestion areas, improved access and new access to regional centers and space for transportation servicing facilities.

- **Transportation Equipment Control and Tracking Center**
  The center will provide transportation equipment location and control services for a wide spectrum of transportation modes to include trucking, rail, air, barge and ship.

All nine candidates were rated and ranked against the established criteria for Business of Transportation Preliminary Feasibility, first without weighting of any criteria factor. A second rating and ranking was completed using a weighting factor denoting the importance of each point of criteria. A summary of the rating scores and rank are located in Table 1-1. Attachments A and B outline the detailed matrix for the unweighted and weighted scores respectively.

Table1-1. Candidate Scores and Rankings				
Business of Transportation				
CANDIDATES	Score Unweighted	Rank Unweighted	Score Weighted	Rank Weighted
Consolidation & Shipping Center	63	6	203	**6**
Rail Equipment /Container Storage	79	3	268	**4**
Rail Services Center	57	8	195	**7**
Domestic Auto Distribution	86	2	309	**2**
Rail Equip Repair/Rehabilitation	90	1	331	**1**
Inland Support for Ports	66	5	214	**5**
National Freight Corridor	57	7	192	**8**
E-W Rail Route Improvements	50	9	142	**9**
Trans Tracking and Control	85	4	295	**3**

Preliminary Feasibility Determination

All rated and ranked candidates above were considered to be worthwhile opportunities for receiving additional evaluation in Phase II of the study. Some candidates were found to be less viable than others based upon the ranking matrix. The recommended candidates for Business of Transportation opportunities, in order of potential value are:

1. **Rail Equipment Repair and Rehabilitation Center**
2. **Domestic Automobile Distribution Center**
3. **Transportation Equipment Control and Tracking Center**
4. **Transportation Services Center: Rail Equipment/ Empty Container Center**
5. **Inland Operational Support to Washington Seaport**
6. **Eastern Washington Export Consolidation and Shipment Center**
7. **Transportation Services Center, Rail Servicing Point**
8. **Transportation Center, National Strategic Freight Corridor**
9. **East-West Rail Route Improvements**

Attachment A - Feasibility Criteria Ratings (Unweighted)

Business of Transportation

PRELIMINARY FEASIBILITY CRITERIA RATINGS

UNWEIGHTED Feasibility Criteria

	Relative Value of Each Candidate Rated From 1 to 10 with 10 as Highest Value											
CANDIDATES	**3a**	**3b**	**3c**	**3d**	**1a**	**1b**	**1d**	**1f**	**1g**	**1i**	**1j**	**Totals**
Consolidation & Shipping Center	5	5	8	5	8	3	4	8	10	3	4	**63**
Rail Equipment/Container Storage	7	8	8	8	10	8	5	7	10	4	4	**79**
Rail Services Center	4	4	2	5	5	5	3	7	10	6	6	**57**
Domestic Auto Distribution	8	5	8	8	10	8	6	7	10	8	8	**86**
Rail Equip Repair/Rehabilitation	10	5	6	9	8	8	9	9	10	8	8	**90**
Inland Support for Ports	4	7	7	5	10	8	4	5	10	3	3	**66**
National Freight Corridor	4	4	3	4	5	5	3	7	10	6	6	**57**
E-W Rail Route Improvements	4	6	9	3	4	5	2	5	10	1	1	**50**
Trans Tracking and Control	7	7	8	8	10	9	5	8	10	5	8	**85**

Feasibility Criteria Key: Business of Transportation Criteria -

3a. The transportation improvement will reduce system costs.

3b. The transportation improvement will improve system reliability.

3c. The transportation improvement will reduce inventory

3d. The transportation improvement will meet a specific demand.

Applicable Industrial Development Criteria -

1a. Required land will be available and its cost to the industry will be acceptable.

1b. Required labor will be available and its cost to the industry will be acceptable.

1d. Required markets will be accessible for the industry.

1f. Required business environment will exist for the industry.

1g. Required water and other utilities will be available for the industry.

1i. Required returns on site, plant & equipment investments will be met for the industry

1j. Required public improvements/investments will likely be at a reasonable level (total flow only)

Attachment B - Feasibility Criteria Ratings (Weighted)

Business of Transportation
PRELIMINARY FEASIBILITY CRITERIA RATINGS
WEIGHTED Feasibility Criteria

Weighting from 1 to 5 with 5 most important Criteria

CANDIDATES	3a	3b	3c	3d	1a	1b	1d	1f	1g	1i	1j	Totals
Criteria Weighting Factors	**5**	**3**	**2**	**5**	**4**	**3**	**5**	**2**	**1**	**5**	**5**	
Consolidation & Shipping Center	5	5	8	5	8	3	4	8	10	3	4	**203**
Rail Equip/Container Storage	7	8	8	8	10	8	5	7	10	4	4	**268**
Rail Services Center	4	4	2	5	5	5	3	7	10	6	6	**195**
Domestic Auto Distribution	8	5	8	8	10	8	6	7	10	8	8	**309**
Rail Equip Repair/Rehabilitation	10	5	6	9	8	8	9	9	10	8	8	**331**
Inland Support for Ports	4	7	7	5	10	8	4	5	10	3	3	**214**
National Freight Corridor	4	4	3	4	5	5	3	7	10	6	6	**192**
E-W Rail Route Improvements	4	6	9	3	4	5	2	5	10	1	1	**142**
Trans Tracking and Control	7	7	8	8	10	9	5	8	10	5	8	**295**

Feasibility Criteria Key: Business of Transportation Criteria -

3a. The transportation improvement will reduce system costs.
3b. The transportation improvement will improve system reliability.
3c. The transportation improvement will reduce inventory
3d. The transportation improvement will meet a specific demand.

Applicable Industrial Development Criteria -

1a. Required land will be available and its cost to the industry will be acceptable.
1b. Required labor will be available and its cost to the industry will be acceptable.
1d. Required markets will be accessible for the industry.
1f. Required business environment will exist for the industry.
1g. Required water and other utilities will be available for the industry.
1i. Required returns on site, plant & equipment investments will be met for the industry
1j. Required public improvements/investments will likely be at a reasonable level (total flow only)

Attachment C

FACT SHEET – Business of Transportation

Eastern Washington Export Consolidation and Shipment Center

Business:	**Export Consolidation Center-** This center would be a centralized location for receiving and intermodal transfer of containerized agricultural products for rail movement to the Ports of Seattle and Tacoma. Variations could include temporary storage of containers and/or commodities and on-site container-stuffing where found to be advantageous. Receiving, storage and distribution of empty containers east bound for agricultural products and maximizing container capacity with highway over-weight loads for direct rail delivery are additional potentials.
Land Parcel Size:	Approximately 25 acres would be required for this business operation.
On-site Requirements:	On-site requirements would include: container yard heavy paving; storage facilities and cross dock operation; truck control gate; fencing; rail intermodal loading and administrative facilities.
Utilities:	The consolidation center will require availability to all utilities including: water/sewer, electricity, natural gas, communications (including fiber optics).
Transportation:	Access to highway and UP/ BNSF railroad mainlines is essential. Railroad pricing and capacity is required to establish the consolidation center. Critical to this opportunity is the competitive stance of railroads to provide these services in lieu of fully trucking from farm to seaport terminals. Anticipated to require so called "short trains" dispatched as individual trains or train segments to/from seaports. Requires running on same trackage as long distance intermodal unit trains or allowed to be integrated on a Tri-Cities node of the Intermodal Network. Rail capacity, pricing incentives for the railroads and trucking competition will be key to ultimate finding of feasibility.
Labor Forces:	The labor force will primarily consist of general labors.
Market Proximity:	The consolidation center will need to be in close proximity to significant industrial and/or agricultural production.

Attachment D

FACT SHEET – Business of Transportation

Transportation Service Center: Rail equipment/Empty Container Center

Business:	**Rail Equipment Center-** The proposed center would be an enroute facility for storing, staging, and dispatching railroad double stack rail cars and empty containers. Provides railroads with a cost effective location and facility for accumulating empty cars and containers that cannot be stored and staged for use in meeting import container volumes that tend to peak by week and by season. Site would assist in overcoming inadequate storage/staging facilities at the ports or at west-side railroad terminals which could represent a key future impediment to efficient intermodal container flows and allow more efficient movement of empty cars and containers westbound. Empty container storage outside of critically short port terminal space could also be accommodated. Locomotive power may also be a staging candidate for this site. Would allow the railroads to store/stage equipment and empty containers in-depth enroute to/from the Midwest and seaports of Seattle and Tacoma.
Land Parcel Size:	Approximately 150 acres would be required for this business operation.
On-site Requirements:	On-site requirements would include: rail equipment storage yard; container yard moderate paving; fencing; rail intermodal loading point; and administrative facilities.
Utilities:	The rail equipment center will require availability to all utilities including: water/sewer, electricity, natural gas, and communications.
Transportation:	Rail access to UP and BNSF and integration of this facility with their railroad Intermodal Networks is essential. A cost effectiveness of facility must be demonstrated to the railroads. Critical to this opportunity is establishing actual need, efficiencies and cost-savings for the railroads. Requires efficient movements on and off mainlines but does not require a facility immediately adjacent to a mainline. Switching services must be neutral, cost effective and highly responsive to railroad needs. Key will be railroad-driven interest in integrating this type of facility with their Intermodal Networks.
Labor Forces:	The labor force will primarily consist of general labors.
Market Proximity:	Rail service centers do not need to be located near large population centers. The centers are typically located adjacent to mainline operations.

Attachment E

FACT SHEET – Business of Transportation
Transportation Service Center: Rail Servicing

Business:	**Rail Servicing**- An enroute facility that would provide rail operations support services such as fueling, inspection, maintenance, repair, crew rest and change, dispatch and arrival/ departure trackage. Provides railroads with a cost effective location and essentially unlimited space facility for servicing trains enroute E-W on the transportation network. Establishment of such a facility on the Reservation would be tied to successful relocation of the current mainline to cross the Reservation.
Land Parcel Size:	Approximately 75 acres would be required for this business operation.
On-site Requirements:	On-site requirements would include: equipment storage yard; inspection, repair, fueling and air facilities; light paving; fencing and administrative facilities.
Utilities:	The rail repair and rehab center will require availability to all utilities including: water/sewer, electricity, natural gas, communications (including fiber optics). Adequate lighting and operation of shop equipment would be the primary utility needs.
Transportation:	Rail access adjacent to the mainline is essential. Need to integrate this facility with other railroad Intermodal Networks. Prerequisite to this opportunity is successful rerouting of a major E-W mainline through the Reservation. Critical is establishing actual need, efficiencies and cost-savings provided the railroads by such a facility at that location in lieu of existing sites along the current mainline. Key will be railroad-driven interest in integrating this type of facility with their Intermodal Networks.
Labor Forces:	Rail centers often use a variety of skills and skill levels. Mechanists, electricians, mechanics, general labors and supervisors are just a few general job descriptions that would apply to the work force.
Market Proximity:	Rail service centers do not need to be located near large population centers. The centers are typically immediately adjacent to mainline operations.

Attachment F

FACT SHEET – Transportation Related Industries
Domestic Automobile Distribution Center

Business:	**Automobile Distribution Center-** This would be a consolidated regional domestic automobile center for mass receiving by rail, storage, component additions, staging for intermodal transfer to trucking for Pacific Northwest Distribution Network. Provides U.S. automobile manufacturers with an efficient, cost-effective alternative to shipping by rail from the Midwest and other manufacturing sites across the country. Replaces numerous distribution centers with limited storage capacity on expensive sites close in to PNW population centers, including the west side of Washington State.
Land Parcel Size:	Approximately 75 acres would be required for this business operation.
On-site Requirements:	On-site requirements would include: auto storage yard light paving; auto rail car unload facilities, auto truck loading facilities; truck control gate; fencing and administrative buildings.
Utilities:	The distribution center will require availability to all utilities including: water/sewer, electricity, natural gas, and communications.
Transportation:	Efficient access via highway and to both UP and BNSF mainlines. Efficient, neutral and cost-effective switching to both railroads and inclusion of the Tri-Cities area as an operating node on the Intermodal networks of the railroads are key. Providing railroad incentives for use of a central location inland and for coordinating import auto shipments with a domestic moves will also be key.
Labor Forces:	The labor force will primarily consist of equipment operators general laborers.
Market Proximity:	The distribution center is site sensitive to the distribution region it serves. This area could include Montana, Idaho Oregon, Washington, northern California and northwestern Utah and Nevada.

Attachment G

FACT SHEET – Business of Transportation
Rail Equipment Repair and Rehabilitation Center

Business:	**Rail Repair Center-**This facility would provide cost-effective repair, rehabilitation and overhaul of locomotives and rail cars. The center would also provide storage and staging for rail equipment. Utilizes a favorable geographic location for centralizing this type of facility for western U.S. rail operations for multiple railroads including those secondary to the UP and BNSF. Utilizes momentum already generated by a competent private repair, rehabilitation and overhaul business operator already on site and seeking expansion. Utilizes a rail equipment technician/mechanic skills training program already underway and being recognized nationally by the industry and the availability of excellent existing rail repair, rehabilitation and overhaul facilities already transferred to local public ownership. Provides additional opportunities for expanding the business to rail equipment manufacturing and centralized supply of rail replacement parts and component manufacturing.
Land Parcel Size:	Approximately 100 acres would be required for this business operation.
On-site Requirements:	On-site requirements would include: equipment storage and staging; high bay rail specialty shops; parts storage, machine shop, paint and engine overhaul facilities; rail storage, staging and test trackage; and administrative facilities.
Utilities:	The rail repair and rehab center will require availability to all utilities including: water/sewer, electricity, natural gas, communications (including fiber optics). Adequate lighting and operation of shop equipment would be the primary utility needs.
Transportation:	Efficient access via highway and to both UP and BNSF mainlines. Efficient, neutral and cost-effective switching to both railroads are key. Providing railroad incentives for consolidated use of a private repair contractor at this central location inland will also be key.
Labor Forces:	Rail centers often use a variety of skills and skill levels. Mechanists, electricians, mechanics, general labors and supervisors are just a few general job descriptions that would apply to the work force.
Market Proximity:	Rail service centers do not need to be located near large population centers. The centers are typically located at access points for two (or more) mainline operations.

Attachment H

FACT SHEET – Business of Transportation
Inland Operational Support for Washington Seaports

Business:	**Inland Support Center**- The inland center would provide storage, staging and distribution facilities in direct support of Washington seaports of Seattle and Tacoma. This support center will have components of both a transportation service center and an intermodal services operation. Attachment H-1 provides a detailed description of the proposed business operation.
Land Parcel Size:	Approximately 200 acres would be required for the center.
On-site Requirements:	This site would include: rail intermodal transfer yard; rail storage and staging trackage; container storage yard heavy paving; truck control gate; fencing and administrative buildings.
Utilities:	The inland support center will need availability to all utilities including: water/sewer, electricity, natural gas, communications (including fiber optics). Adequate lighting is needed because much of the facilities operation occurs at night.
Transportation:	Direct access to highways and efficient, cost-effective switching to both UP and BNSF railroads is essential. Railroad participation is required to establish the Tri-Cities area as an intermodal node. Attachment H-1 details the transportation needs.
Labor Forces:	The support center will use a variety of skills and skill levels. Equipment operators, mechanics, general labors and supervisors are just a few general job descriptions that would apply to the work force.
Market Proximity:	Inland centers in support of seaports must be sited at locations and distances allowing cost effective re-handling of cargoes.

Attachment H-1 Business and Transportation Requirements

Inland Operational Support for Washington Seaports

Business

This business would provide storage, staging and distribution facilities in direct support of Washington seaports of Seattle and Tacoma. This type of transportation service center and intermodal hub operation, often referred to as an "Inland Port," is not yet precisely defined by the industry. The broad concept used for evaluating its preliminary feasibility in this study consists of:

"A facility to provide supplementary space and intermodal operating facilities. Such facilities would be designed to relieve the ports' growing shortage of waterfront terminal space and railroads' westside staging space and to facilitate rail and highway movements of containerized cargoes to the Midwest, East Coast and to inland regional locations."

Of special interest and potential is a need to relieve rail congestion and constraints on eastbound containerized import containers. Because at least 70% of all import containers arriving at Washington seaports are moved immediately eastbound by rail for delivery to the U.S. Midwest and East Coast the growing constraints of rail flows represent a potential long term threat to retaining market-share. Without long-term solutions this impediment is expected to increase and intensify as potential growth of that market doubles flows in the next 20 years.

Detailed evaluation will include consideration of operating schemes that mass-move containers to an inland site for staging and building of long distance unit trains, simultaneous movement of inland regional import containers for intermodal transfer to truck-movements east of the Cascade Range and providing off-port storage and staging of westbound empty and export containers. This business of transportation would be driven by the difficult task of providing such services without increased costs or a balancing of increased costs by maintaining otherwise lost revenue or increasing revenues from increasing market share of these cargoes.

The strategic nature of maintaining a strong Washington State seaport presence in this West Coast dominated trade may play a role in justifying such inland facilities. A key consideration in analyzing feasibility of this scheme will be challenges presented by adding major operating costs for re-handling of containers that might otherwise flow directly through the Eastern part of the State. Fully compensatory rates of return on private investment may be difficult to assure and retention of public benefits represented by this international trade business may have to play a role.

Transportation

Efficient access via highway and rail to include both UP and BNSF mainlines. Efficient, neutral and cost-effective switching to both railroads are key. Scheme will require full acceptance and participation by both railroads and their establishment of Tri-Cities area as a node on both Intermodal Networks.

Attachment I

FACT SHEET – Business of Transportation

Transportation Services Center: National Strategic Freight Corridor

Business:	**Strategic Freight Corridor-**This freight corridor center would provide support to highway and rail traffic traversing a potential Federally designated "National Strategic Freight Corridor" between the Pacific Northwest of Canada and the U.S. and the south central states and Mexico. Attachment I-1 provides a detailed discussion of the proposed business operation.
Land Parcel Size:	Approximately 150 acres would be required for this business operation.
On-site Requirements:	On-site requirements would include: equipment storage yard; inspection, repair, fueling and air facilities; light paving; fencing and administrative facilities. The facility would also have to be adjacent to the mainline tracks and provide a similar facility for trucking.
Utilities:	The center will require availability to all utilities including: water/sewer, electricity, natural gas, communications (including fiber optics). A electrical signal operation would be in necessary.
Transportation:	Rail access adjacent to the mainline is important. Need to integrate this facility with other railroad Intermodal Networks or demonstrate cost savings of the site. A trucking facility would also be needed. Attachment I-1 details the transportation needs.
Labor Forces:	The center would require general labors as well as specialized rail operation personnel.
Market Proximity:	This business opportunity does not have to be located close to any market centers as long as the required labor force and supplies are available.

Attachment I-1 Business and Transportation Requirements

Transportation Services Center: National Strategic Freight Corridor

Business

The strategic freight corridor would provide a transportation service center support to highway and rail traffic traversing a potential Federally designated "National Strategic Freight Corridor" between the Pacific Northwest of Canada and the U.S. and so called "sunbelt" of the south central states and Mexico. That corridor as developed in early studies flows through the Tri-Cities area. The concept is that as this national program proceeds and official designation takes place, federal support for development of infrastructure and mitigating impacts will prompt opportunities for support services and other transportation-driven industries to be developed.

This business of transportation opportunity includes an enroute facility for providing rail operations support services such as fueling, inspection, maintenance, repair, crew rest, crew change, dispatch arrival/departure trackage and temporary train storage and staging. It would provide railroads with a cost effective location and essentially unlimited space facility for servicing trains enroute on the national transportation network. Similar facilities for trucking and enroute freight handling and intermodal services are also potential uses.

As a business, the development of support service facilities on a national corridor entails the consideration of reducing system costs, improving reliability and meeting specific demand. The several factors that will drive determination of feasibility for these improvements will not only include those feasibility criteria but must also address public investment interests for public benefits of induced production and distribution facility development that could occur.

Transportation

Rail access immediately adjacent to the supported mainline. Prerequisite is this opportunity's tie to successful rerouting of a major E-W mainline through the Reservation. Critical to this opportunity is establishing actual need, efficiencies and cost-savings provided the railroads by such a facility at that location in lieu of other sites along the mainline. Key will be railroad-driven interest in integrating this type of facility with their Intermodal Networks. Similar requirements for trucking.

Attachment J

FACT SHEET – Business of Transportation
East-West Route Rail Improvements

Business:	**E-W Route Improvements-** This business would provide additional rail capacity, shortened routes, relief to grade crossing impacts, bypassing of rail congestion areas, improved access and new access to regional centers and space for transportation servicing facilities. Attachment J-1 provides a detailed discussion of the proposed business operation.
Land Parcel Size:	Acquiring right of way and approximately 100 to 140 miles of new rail construction.
On-site Requirements:	Approximately 100 to 140 miles of new rail construction; tunnel improvements at Stampede Pass for accommodating double stack trains; new rail bridge in the vicinity of North Richland; new rail connection to BNSF mainline and Pasco Yard would be part of this business opportunity.
Utilities:	The E-W route would require electrical utilities for signaling.
Transportation:	The E-W route improvements would not require any special transportation requirements.
Labor Forces:	The new route would require general laborers as well as specialized rail operation personnel.
Market Proximity:	This business opportunity does not have to be located close to any market centers as long as the required labor force and supplies are available.

Attachment J-1 Business Requirements

East-West Route Rail Improvements

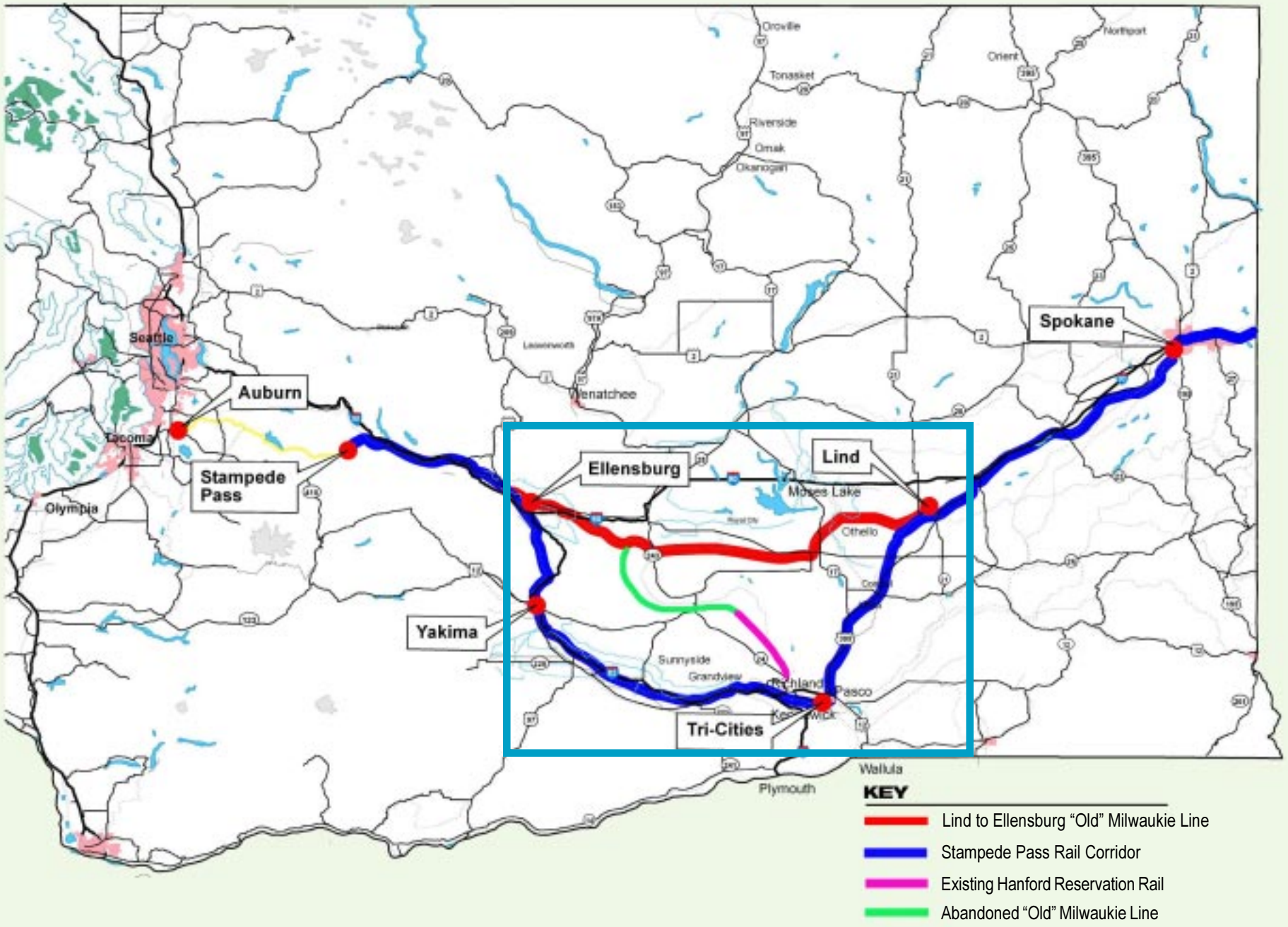
Business

The east-west rail improvements would provide additional rail capacity, shortened routes, and relief for grade crossing impacts, bypassing of rail congestion areas, improved access and new access to regional centers and space for transportation servicing facilities. This has been approached as a business of transportation i.e., private mainline rail, but it also encompasses substantial existing and potentially new public investment in support of mainline rail routes. The concept is of primary interest to the State and Port as it relates to the opportunities provided by the 124 miles of Reservation rail but also includes strategic transportation issues requiring a brief review of previous studies for a new major E-W rail route across Central Washington.

The concept being considered includes reconstruction of the original Milwaukee Railroad Route from the current BNSF route at Ellensburg to West Beverly (west bank of the Columbia River) and southward to connect to the 124 mile Reservation rail system and/or completion of the route eastward to Lind at the current BNSF route. Attachments J-1(a) and J-1(b) are maps identifying those routes. Conceptually, a new mainline route would be created to either move through-trains more directly to/from Spokane eliminating the grade crossings and rail congestion in the Yakima Valley and Tri-Cities while reducing rail distance and crew times. Such a route is also perceived as adding to the viability of commerce throughout that new route to include the Eastern Ellensburg Valley, Othello and Moses Lake. Alternatively, or in addition to, connecting to Lind, the southward connection to the Reservation rail and Pasco BNSF rail facilities via a Columbia River rail bridge in the vicinity of North Richland would provide the positive impacts for Yakima Valley and Tri-Cities while still adding to commerce in the Eastern Ellensburg valley. These considerations involve potential public benefit as well as business considerations for rail shipping.

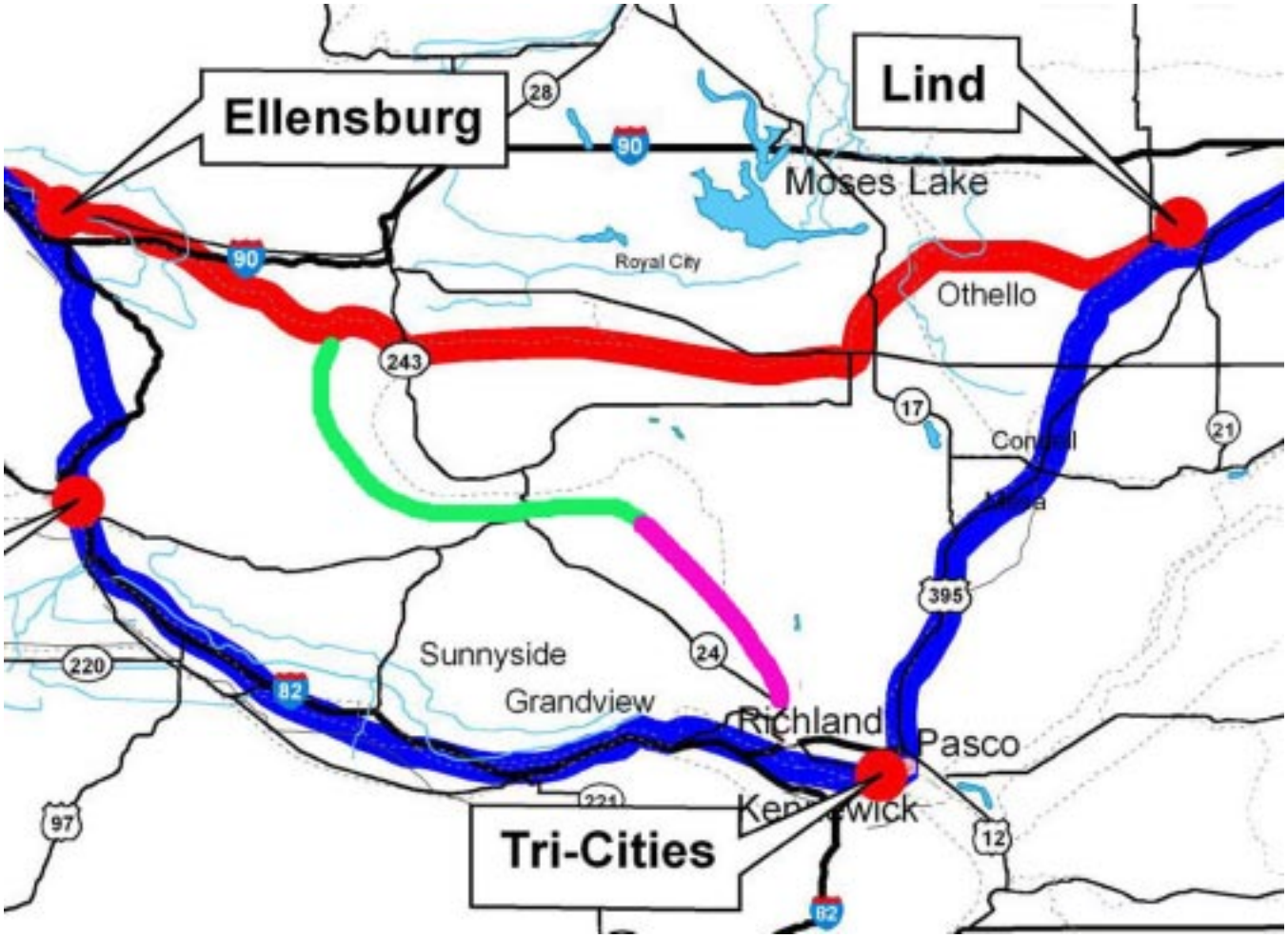
As a business, the development of new E-W rail route improvements entails the consideration of reducing system costs, improving reliability and meeting specific demand. The several factors that will drive determination of feasibility for these improvements will not only include those feasibility criteria but must also address public investment interests for public benefits noted above. During detailed feasibility evaluations, the business of transportation will be addressed based upon the feasibility criteria developed for that purpose but may rely heavily on the Public Improvements and Investments Criteria.

State of Washington/Port of Benton Hanford Investment Study



Existing and Potential Railroad Alignments

State of Washington/Port of Benton Hanford Investment Study



KEY

- Lind to Ellensburg "Old" Milwaukie Line
- Stampede Pass Rail Corridor
- Existing Hanford Reservation Rail
- Abandoned "Old" Milwaukie Line

Existing and Potential Railroad Alignments

Attachment K

FACT SHEET – Business of Transportation
Transportation Equipment Control and Tracking Center

Business:	**Equipment Tracking Center**-This facility would provide location and control services for a wide spectrum of transportation modes to include trucking, rail, air, barge and ship. The tracking center would use equipment identification transponders, satellite navigation and tracking, ground positioning systems, fiber optic communications and data base computers to maintain inventories, location and control of freight and cargoes worldwide. Attachment K-1 provides a detailed description of the proposed business operation.
Land Parcel Size:	Approximately 5 acres would be required for this business operation.
On-site Requirements:	On-site requirements would include: offices, computer space and fiberoptic communications systems; satellite antennae and access to international high quality data communication links.
Utilities:	The rail repair and rehab center will require availability to all utilities including: water/sewer, electricity, natural gas, communications (including fiber optics). High quality communication and computer links would be required.
Transportation:	The tracking center would not require any special transportation requirements.
Labor Forces:	The tracking center would require specialized high tech computer, communications, logistics and support personnel.
Market Proximity:	The tracking center would not have to be located close to any market centers as long as the required labor force and communication links are available.

Attachment K-1 Business Requirements

Transportation Equipment Control and Tracking Center

Business

The equipment control and tracking center would provide transportation equipment location and control services for a wide spectrum of transportation modes to include trucking, rail, air, barge and ship. This contemporary business of transportation utilizes the technology of equipment identification transponders, satellite navigation and tracking, ground positioning systems (GPS), fiber optic communications and data base computers to maintain inventories, location, and control of freight and cargoes enroute to locations worldwide. Although such a center is not tied to a precise siting such as the Tri-Cities, an already transferred building from the Hanford Reservation is immediately available and appears to be an ideal candidate facility for a tracking center. It already contains space for high volume data processing and is served by fiber optics communications. A decision to site such a facility at Hanford may also profit from synergies created by successfully developing other transportation businesses and transportation corridors in the same vicinity as well as the high tech nature of Richland area business.

As a business of transportation, the development of tracking and control facilities entails the consideration of reducing system costs, improving reliability and meeting specific demand. The several factors that will drive determination of feasibility for these improvements will not only include those feasibility criteria but must also address public investment interests for public benefits of induced transportation related development that could occur.

SECTION 2: INDUSTRIAL DEVELOPMENT

The Hanford area assets are suitable for a wide range of industrial uses as well as specific transportation related uses. The purpose of Phase I of this study is to identify promising candidate businesses for detailed study in Phase II. This document describes the evaluation process and results for industrial development uses. Uses, which are considered to be the business of transportation, are evaluated in a separate document.

This document summarizes the evaluation process and results, and is organized in four sections:

1. Compilation of Business Ideas
2. Overall Evaluation Process
3. Evaluation Steps
4. Recommendations

Compilation of Business Ideas

A list of candidate business ideas was developed through several sources:

- Team Brainstorming
- Tri Cities Field Interviews
- Review of Previous Studies and Documents
- Review of Economic Development Trends

The brainstorming session included study team members with professional experience in economic development, industrial real estate, transportation, and engineering. Field interviews with local economic development representatives, Port districts staff, Department of Energy and major contractors, educational institutions, and regional planners provided additional ideas. Significant previous studies included studies at the local level such as *Tri Cities Economic Diversification* in the late 1980s and the *Tri Cities Challenge, A Strategy for Economic Transformation* by DRI/McGraw-Hill in 1996; as well as state-wide studies prepared for Washington Department of Trade Community on and Economic Development (DCTED). Economic development trends were identified from relevant literature and the team's professional experience.
Eighty-seven business ideas were identified through our process. Many of the ideas are quite specific. The ideas were grouped into their associated 2-digit SIC codes.

Evaluation Process

The ideas were evaluated in a three-step process. This process was used to screen feasible alternatives from the list of eighty-seven ideas. The steps are as follows:

1. **Capability Analysis** – a comparison of Tri Cities Area/Hanford Sites characteristics with industry requirements. Ideas that had lower scores in terms of a match with local capabilities were eliminated from further consideration.

2. **Preferred Industry Analysis** – a rating of industries for economic performance in terms of such factors as industry size, growth outlook, wage levels, and investment and return. This analysis was completed at a 2-digit SIC level because of availability of data. Industry categories that provided fewer economic benefits were excluded from further consideration.

3. **Competitive Analysis** – a consideration of comparative advantage or disadvantage. Previous studies were reviewed to identify broader categories of business where the Tri Cities area had a competitive advantage. Results were refined according to Hanford area strengths.

Based on the competitive analysis, eight broad industry categories were identified which included the specific business ideas that remained after the first two steps. The broad categories cut across SIC classifications in many instances, and contain a variety of specific ideas.

Evaluation Steps

Capability Analysis

The capability screening is displayed in the screening matrix, located in Attachment A. Both the capabilities of the local area and Hanford sites, and the requirements of candidate businesses are evaluated according to specific feasibility criteria. The criteria were described in a previous study document, and include:

- **Land Availability** – for very large (200 acre or greater), large (100 acres or greater), medium (20 to 100 acres), and small (under 20 acres) sites.

- **Utilities** – current and potential need for, or availability of, water, waste water treatment, natural gas, electricity, and communications.

- **Transportation** – highway, rail, water and air facilities.

- **Labor** – availability and cost of unskilled, skilled, and labor with advanced degrees.

- **Market Proximity** – distance from major markets where important.

- **Raw Materials** – readily available.

- **Business Climate** – regulation and taxation.

- **Quality of Life** – natural and cultural amenities.

The area capabilities and business requirements are rated on a scale of 1 to 3 as shown in the screening key in Appendix B.
Each business requirement is compared to the area/site capability, and there is a match when the capability rating is equal to or greater than the requirement. A total score is

calculated in the right hand column as the number of matches. The highest possible score is 16. Eight ideas with scores of 12 or less are recommended to be excluded from Phase II consideration for Hanford sites.

- Agriculture
- Fish Raising
- Food and Kindred Products
- Primary Metals (Aluminum Smelter)
- Refinery
- Structural Concrete
- Semiconductors
- Software

It should be emphasized that some of the ideas are well suited for sites in the Tri Cities generally, but are not considered priority uses for the Hanford sites.

Preferred Sector Analysis

Of all candidate uses that an area is capable of attracting, there are some that are preferable in terms of their economic performance and the benefits they create for the area. This analysis evaluates industry groups at a 2-digit SIC code level. (Analysis at the level of individual candidates would require more data than is readily available). The factors considered are the following:

- **Size (employees)** – with large sectors being preferable to small ones if all other factors are equal.

- **Growth Outlook (employment growth)** - with fast growing sectors preferable.

- **Average Wage** - with higher wage jobs preferable.

- **Capital Intensity (average value of assets)** – with lower capital requirements reflecting easier entry into the local economy.

- **Financial Return (return on equity)** – with higher return industries offering a better chance of justifying investment.

The ratings are shown in pages 1 and 2 of the screening matrix. The ratings are 0 – 3 as shown in the column headings for each factor. The total scores are summarized as follows:

Business Services	13
Wholesale	11
Industrial Machinery	10
Fabricated Metals	9
Paper	9
Printing	9
Electrical/Electronic	8
Lumber/Wood	8
Engineering/Research	8+
Utilities	8
Communications	7
Instruments	7
Agriculture	6
Chemicals	6
Food & Kindred Products	6
Primary Metals Smelter	6

The industries (2-digit SIC level) scoring 6 or lower are excluded from consideration for Phase II. As noted above, such candidates may well be suitable for other areas of the Tri Cities.

Competitive Analysis

The compatibility analysis identified candidate businesses that would find the area and sites suitable for their needs. But the area may not have any particular competitive advantage over other areas in attracting those businesses. In the third step of the analysis, competitive strength of the area and identified categories of businesses that are attracted by those strengths were considered. There are several factors which provide the area with varying degrees of competitive advantage.

- **Brainpower –** concentration of advanced degrees.
- **Existing Business Concentrations –** such as metals, energy, and environmental.
- **Unique Specialized Facilities and Equipment**
- **Extensive Land Supply**
- **Cost of Living –** low relative to Western Washington
- **Transportation Opportunities –** as documented in the Business of Transportation

A variety of studies have identified target industries for the area based on competitive advantages, but the 1996 study by DRI/McGraw-Hill was explicit in identifying and grouping businesses based on those strengths. The study identified six groups, referred to as strategic directions. Based on the screening criteria and analysis, agribusiness and food processing were identified as a lower priority use for the Hanford sites (although a strong candidate for the area generally). Further, the medical technology category has a limited competitive advantage given the strength of the biotech and medical technology sectors in the Puget Sound area. There are four categories referred to in the study that also meet the criteria set forth in steps one and two. These categories are:

- **Environmental Services, Equipment, and Resources**-The environmental industry is comprised of firms that manufacture equipment for the analysis of air, gas, soil and water and provide related environmental services.

- **Computer and Information Technology**-This business would build on strong local resources in computer and information sciences and systems, multimedia services and telecommunications.

- **Energy and Energy Systems-**This business would include production, distribution, and a variety of services related to existing and emerging energy sources.

- **Advanced Materials-** This business involves metal materials industries including aluminum and titanium as well as plastics.

In addition to these four categories, four additional groupings were found to meet the competitive analysis criteria. These are:

- **Wholesale/Distribution** – related to transportation opportunities described in the Business of Transportation.

- **Miscellaneous Manufacturing** – a variety of manufacturing facilities that are finding high land costs, wages, and overall cost of living at their Western Washington locations. Sites in Eastern Washington provide an alternative for those businesses considering relocating outside the state.

- **Transportation Equipment** – equipment manufacturing which complements the facilities and services identified in the Business of Transportation evaluation.

- **Low Compatibility Uses** – which require large sites with extensive buffering because of real or perceived conflicts with surrounding uses.

All of the candidate businesses, which passed the earlier screening, can be grouped into one of these eight categories.

Recommendation

We recommend that the following eight business categories be included in the Phase II detailed feasibility evaluation.

Energy/Energy Systems

Environmental

Advanced Materials

Information/Communications

Wholesale/Distribution

Miscellaneous Manufacturing

Transportation Equipment/Services

Low Compatibility Uses

These categories include specific candidate business opportunities. They are sufficiently broad to allow some flexibility in projecting future attraction or expansion. The Phase II analysis will provide information on these categories in sufficient detail to project potential absorption, physical requirements, investment requirements, and public and private benefits.

Attachment A

STATE OF WASHINGTON/PORT OF BENTON HANFORD INVESTMENT STUDY
INDUSTRY SCREENING MATRIX

(Refer To Definition Of Feasibility Criteria--Technical Memorandum No. 1)

			TRI-CITIES/HANFORD CAPABILITY															
			AVAILABILITY OF SITES				UTILITIES					TRANSPORTATION			ECONOMIC FACTORS			
			Very Large	Large	Medium	Small	Water	Waste Water Treatment	Natural Gas	Electricity	Comm.	Highway	Rail	Air	Unskilled Labor	Skilled Labor	Advanced Degrees	Market Proximity
			3	3	3	3	2	3	2	3	3	2	2	2	2	1	3	2
			INDUSTRY REQUIREMENTS															
			AVAILABILITY OF SITES				UTILITIES					TRANSPORTATION			ECONOMIC FACTORS			
#	SIC	INDUSTRY CANDIDATE IDEAS	Very Large	Large	Medium	Small	Water	Waste Water Treatment	Natural Gas	Electricity	Comm.	Highway	Rail	Air	Unskilled Labor	Skilled Labor	Advanced Degrees	Market Proximity
		AGRICULTURE, FORESTRY FISHING																
1	**1**	**Agricultural Production-Crops**	3	0	0	0	2	1	1	1	1	3	3	1	3	2	1	1
	2	Agricultural Production-Livestock																
	7	Agricultural Services																
	8	Forestry																
	9	**Fishing, Hunting, and Trapping**																
2		Fish Raising	0	0	0	3	3	3	1	2	1	2	1	2	3	2	1	2
		MINING																
	10	Metal Mining																
	12	Coal Mining																
	13	Oil and Gas																
	14	**Mining and Quarrying**																
3		Gravel	3	0	0	0	1	1	1	1	1	3	2	1	3	1	1	2
		CONSTRUCTION																
	15	Building Construction																
	16	Heavy Construction																
	17	Construction-Trades																
		MANUFACTURING																
	20	**Food and Kindred Products**																
4		Frozen Food Specialties	0	0	3	0	2	3	2	2	2	3	3	2	3	2	1	1
5		Confectionary Products	0	0	0	3	2	2	2	2	1	3	1	1	3	2	1	2
6		Canned Products	0	0	3	0	3	3	3	3	1	3	3	1	3	2	1	1
7		Misc. Products	0	0	3	0	3	3	3	3	1	3	3	1	3	2	1	1
8		Wines	0	0	0	3	2	2	1	1	1	3	1	1	3	2	1	1
9		Food Irradiation	0	0	0	3	1	1	1	1	1	3	2	1	1	2	2	1
	21	Tobacco																
	22	Textiles																
	23	Apparel																
	24	**Lumber and Wood**																
10		Misc. Wood Poducts	0	0	3	0	1	1	2	2	1	3	2	1	1	3	1	1
11		Manufactured Housing	0	3	0	0	1	1	1	2	1	3	1	1	2	2	1	2
	25	Furniture and Fixtures																
	26	**Paper and Allied**																
12		Paper-related Industries	0	0	0	3	1	1	2	2	1	3	2	1	3	2	1	2
	27	**Printing and Publishing**																
13		Misc. Publishing	0	0	0	3	1	1	1	1	3	2	1	2	1	3	2	1
	28	**Chemicals**																
14		Biological Products	0	0	0	3	2	2	1	2	2	2	1	2	1	2	3	1
15		Pharmaceutical Preparations	0	0	0	3	2	2	1	2	2	2	1	2	1	2	2	1
16		Radio-isotopes	0	0	0	3	2	2	2	2	3	1	1	2	1	2	3	1
17		Fertilizer	0	0	3	0	2	2	2	2	1	2	3	1	3	2	1	2
18		Explosives	0	3	0	0	2	2	2	2	1	3	3	1	2	2	1	1
19		Munitions	0	3	0	0	2	2	2	2	1	3	3	1	2	2	1	1
20		Hazardous Materials	0	3	0	0	2	2	2	2	1	2	3	1	1	3	2	1
	29	**Petroleum**																
21		Refinery	3	0	0	0	1	1	3	3	2	3	3	1	1	3	2	1
	30	**Rubber and Plastics**																
22		Plastic Products	0	0	0	3	2	2	2	2	2	2	2	1	1	3	2	2
	31	Leather																

Attachment A

STATE OF WASHINGTON/PORT OF BENTON HANFORD INVESTMENT STUDY
INDUSTRY SCREENING MATRIX

(Refer To Definition Of Feasibility Criteria--Technical Memorandum No. 1)

			TRI-CITIES/HANFORD CAPABILITY															
			AVAILABILITY OF SITES				UTILITIES					TRANSPORTATION			ECONOMIC FACTORS			
			Very Large	Large	Medium	Small	Water	Waste Water Treatment	Natural Gas	Electricity	Comm.	Highway	Rail	Air	Unskilled Labor	Skilled Labor	Advanced Degrees	Market Proximity
			3	3	3	3	2	3	2	3	3	2	2	2	2	1	3	2
			INDUSTRY REQUIREMENTS															
			AVAILABILITY OF SITES				UTILITIES					TRANSPORTATION			ECONOMIC FACTORS			
#	SIC	INDUSTRY CANDIDATE IDEAS	Very Large	Large	Medium	Small	Water	Waste Water Treatment	Natural Gas	Electricity	Comm.	Highway	Rail	Air	Unskilled Labor	Skilled Labor	Advanced Degrees	Market Proximity
	32	**Stone, Clay, Glass, Concrete**																
23		Structural Concrete Products	0	3	0	0	3	3	2	2	1	3	1	1	3	2	1	3
	33	**Primary Metals**																
24		Smelter	0	3	0	0	3	3	3	3	1	2	3	1	1	3	2	1
25		Titanium	0	0	0	3	2	2	2	3	1	3	2	1	1	3	2	1
26		Aluminum	0	0	3	0	2	2	2	3	1	3	2	1	1	3	2	1
27		Composites	0	0	0	3	2	2	2	3	1	3	2	1	1	3	2	1
	34	**Fabricated Metal Products**																
28		Heating Equipment	0	0	0	3	1	1	2	2	1	3	3	1	1	3	1	2
29		Construction Components/Systems	0	3	0	0	1	1	1	2	1	3	3	1	2	3	1	2
	35	**Industrial Machinery, Computers**																
30		Computer Assembly	0	0	0	3	1	1	1	2	2	2	1	2	1	3	2	1
31		Computer Storage Devices	0	0	0	3	1	1	1	2	2	2	1	2	1	3	2	1
32		Machinery Industries	0	0	0	3	1	1	1	2	2	2	1	2	1	3	2	1
	36	**Electronic & Electrical Machinery**																
33		Radio and TV	0	0	0	3	1	1	1	2	2	2	1	2	1	3	2	1
34		Semiconductors and boards	0	0	0	3	3	3	2	2	2	2	1	2	1	3	2	1
	37	**Transportation Equipment**																
34a		Aerospace (autoclave)	0	0	0	3	1	1	3	3	2	2	3	1	1	3	2	1
35		Boat Building	0	0	0	3	1	1	2	2	1	3	2	1	1	3	1	2
36		Barge Building/Repair	0	0	3	0	1	1	2	2	1	1	1	1	1	3	1	2
37		Rail Equipment	0	3	0	0	1	1	2	2	1	1	3	1	1	3	1	2
38		Misc. Motor Vehicle Parts	0	0	3	0	1	1	2	2	1	3	3	2	1	2	1	2
39		Rail cars	0	3	0	0	1	1	2	2	1	1	3	1	1	2	1	2
40		Train Seats	0	0	0	3	1	1	2	2	1	3	2	1	1	2	1	2
	38	**Instruments**																
41		Optical	0	0	0	3	1	1	1	1	1	3	1	2	1	3	2	1
42		Medical Appliances, Instruments	0	0	0	3	1	1	1	1	1	3	1	2	1	3	2	1
	39	**Misc. Mfg.**																
43		Jewelry	0	0	0	3	1	1	1	1	1	2	1	1	1	2	1	1
44		Brooms and Brushes	0	0	0	3	1	1	1	1	1	2	1	1	1	2	1	1
45		Sporting Goods	0	0	0	3	1	1	1	1	1	2	1	1	1	2	1	1
		TRANS., COMMUNICATIONS, UTILITIES																
	40	**Railroad***																
	41	Transit																
	42	**Motor Freight**																
46		General Warehouse and Storage	0	0	0	3	1	1	1	1	1	3	2	1	2	2	1	2
47		Regional Distribution Facility	0	0	3	0	1	1	1	1	2	3	3	1	2	2	1	2
48		Parts Distribution	0	0	3	0	1	1	1	1	2	3	3	1	2	2	1	2
		Other*																
	44	**Water Transportation***																
	45	**Air Transportation***																
	46	**Pipelines**																
49		Misc.	3	0	0	0	1	1	1	1	1	1	1	1	1	3	1	1
	47	**Transportation Services****																
50		Location Tracking	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51		Service Monitoring and Testing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52		Maintenance	0	0	3	0	1	1	1	2	2	2	3	2	1	3	1	2
53		Train Test Area	3	0	0	0	1	1	1	1	1	1	3	1	1	3	1	2

Attachment A

STATE OF WASHINGTON/PORT OF BENTON HANFORD INVESTMENT STUDY
INDUSTRY SCREENING MATRIX

(Refer To Definition Of Feasibility Criteria--Technical Memorandum No. 1)

			TRI-CITIES/HANFORD CAPABILITY															
			AVAILABILITY OF SITES				UTILITIES					TRANSPORTATION			ECONOMIC FACTORS			
			Very Large	Large	Medium	Small	Water	Waste Water Treatment	Natural Gas	Electricity	Comm.	Highway	Rail	Air	Unskilled Labor	Skilled Labor	Advanced Degrees	Market Proximity
			3	3	3	3	2	3	2	3	3	2	2	2	2	1	3	2
			INDUSTRY REQUIREMENTS															
			AVAILABILITY OF SITES				UTILITIES					TRANSPORTATION			ECONOMIC FACTORS			
#	SIC	INDUSTRY CANDIDATE IDEAS	Very Large	Large	Medium	Small	Water	Waste Water Treatment	Natural Gas	Electricity	Comm.	Highway	Rail	Air	Unskilled Labor	Skilled Labor	Advanced Degrees	Market Proximity
	48	**Communications**																
54		Teleport	0	0	0	3	1	1	1	2	3	2	1	2	1	2	3	1
55		Telecommunication Systems	0	0	0	3	1	1	1	2	3	2	1	2	1	2	3	1
56		Space Antennas	0	0	0	3	1	1	1	2	3	2	1	2	1	2	3	1
57		Defense Tracking and Navigation	0	0	0	3	1	1	1	2	3	2	1	2	1	2	3	1
	49	**Utilities**																
58		Wind Power	3	0	0	0	1	1	1	1	1	1	1	1	1	2	1	1
59		Solar Power	3	0	0	0	1	1	1	1	1	1	1	1	1	2	1	1
60		Land-fill-Contaminated and New	0	3	0	0	1	2	1	1	1	3	3	1	3	1	1	1
61		Recycling	0	0	0	3	1	1	1	1	1	3	2	1	3	1	1	3
62		Resource Recovery Energy	0	0	3	0	1	1	1	1	1	3	3	1	2	2	1	1
63		Coal Handling																
64		Natural Gas																
		WHOLESALE																
65		Misc. Wholesale Goods	0	0	0	3	1	1	1	1	2	3	2	1	2	2	1	1
66		Mail Order/Internet Sales	0	0	0	3	1	1	1	1	3	1	1	1	2	2	1	1
		RETAIL																
		FINANCE INSURANCE REAL ESTATE																
		SERVICES																
	73	**Business Services**																
67		Software	0	0	0	3	1	1	1	1	3	2	1	1	1	3	3	3
68		Information Processing (Back Office)	0	0	0	3	1	1	1	1	3	1	1	1	2	2	1	1
	79	**Amusement and Recreation**																
70		River-related																
	80	**Health Services**																
	82	**Education**																
71		Environmental Training	0	3	0	0	2	2	1	2	2	1	1	2	1	3	2	1
	84	**Museums, Botanical, Zoological**																
72		Hanford-related Tourism																
	87	**Engineering. Acctng. Research Mgt.**																
73		Bio-engineering R&D	0	0	0	3	1	1	1	1	3	1	1	2	1	3	3	1
74		Space Systems Design	0	0	0	3	1	1	1	1	3	1	1	2	1	3	3	1
75		Miniaturization	0	0	0	3	1	1	1	1	3	1	1	2	1	3	3	1
76		Metals R&D	0	0	0	3	1	1	1	1	3	1	1	2	1	3	3	1
77		Alternative Energy	0	0	0	3	1	1	1	1	3	1	1	2	1	3	3	1
78		Waste Disposal Management	0	0	0	3	1	1	1	1	3	1	1	2	1	3	3	1
79		Environmental Technologies and Services	0	0	0	3	1	1	1	1	3	1	1	2	1	3	3	1
80		Advanced Ceramics	0	0	0	3	1	1	1	1	3	1	1	2	1	3	3	1
81		Biotechnology	0	0	0	3	1	1	1	1	3	1	1	2	1	3	3	1
82		Bioremediation	0	0	0	3	1	1	1	1	3	1	1	2	1	3	3	1
83		Advanced Materials	0	0	0	3	1	1	1	1	3	1	1	2	1	3	3	1
84		Environmental Molecular Science	0	0	0	3	1	1	1	1	3	1	1	2	1	3	3	1
85		Specialty Research Facilities (Accelerator)	0	0	3	0	1	1	1	3	3	1	1	2	1	3	3	1
		PUBLIC ADMINISTRATION																
86		Essential Public Facilities																
87		State-wide Significant																
		NONCLASSIFIABLE																

Attachment A

Industry Characteristic Value					
Score	WA Emplmnt-1996	Growth 1995-2005	Ave. wage 1995	Return On Equity	Avg. Assets
3	Over 50,000	Over 20%	Over $40,000	15%+	n/a
2	20,000 to 50,000	10 to 20%	$30 to 40,000	10%-15%	2- $1-$10 mil.
1	Under 20,000	0 to 10%	$20 to 30,000	5%-10%	1- $10-$50 mil.
0	n/a	< 0%	<$20,000	0>5%	0- $50 mil.+

			ECONOMIC FACTORS				INDUSTRY CHARACTERISTICS						
			ECONOMIC FACTORS			Capability		Growth	Average	Capital	Financial	PREFERRED
#	SIC	INDUSTRY CANDIDATE IDEAS	Raw Materials	Business Climate	Quality Of Life	Match Score	Size (Employees)	Potential (% Growth Employees)	Wage ($)	Intensity ($)	Return (%)	INDUSTRY SCORE
			2	2	2							
		AGRICULTURE, FORESTRY FISHING										
1	**1**	**Agricultural Production-Crops**	3	1	2	**11**	3	0	0	3	0	**6**
	2	Agricultural Production-Livestock										
	7	Agricultural Services										
	8	Forestry										
	9	**Fishing, Hunting, and Trapping**										
2		Fish Raising	1	13	2	**12**						
		MINING										
	10	Metal Mining										
	12	Coal Mining										
	13	Oil and Gas										
	14	**Mining and Quarrying**										
3		Gravel	3	2	1	**13**						
		CONSTRUCTION										
	15	Building Construction										
	16	Heavy Construction										
	17	Construction-Trades										
		MANUFACTURING										
	20	**Food and Kindred Products**					2	1	1	1	1	**6**
4		Frozen Food Specialties	3	2	1	**11**						
5		Confectionary Products	1	2	1	**13**						
6		Canned Products	3	2	1	**9**						
7		Misc. Products	3	2	1	**9**						
8		Wines	3	2	1	**12**						
9		Food Irradiation	3	3	2	**12**						
	21	Tobacco										
	22	Textiles										
	23	Apparel										
	24	**Lumber and Wood**					2	0	2	2	2	**8**
10		Misc. Wood Poducts	2	2	2	**14**						
11		Manufactured Housing	2	2	2	**14**						
	25	Furniture and Fixtures										
	26	**Paper and Allied**					1	1	3	1	3	**9**
12		Paper-related Industries	2	2	2	**13**						
	27	**Printing and Publishing**					2	2	1	2	2	**9**
13		Misc. Publishing	3	2	2	**14**						
	28	**Chemicals**					1	1	2	0	2	**6**
14		Biological Products	2	3	3	**13**						
15		Pharmaceutical Preparations	2	2	2	**15**						
16		Radio-isotopes	2	3	3	**13**						
17		Fertilizer	2	3	1	**12**						
18		Explosives	2	2	1	**13**						
19		Munitions	2	2	1	**13**						
20		Hazardous Materials	2	2	2	**14**						
	29	**Petroleum**								0	1	
21		Refinery	3	3	2	**10**						
	30	**Rubber and Plastics**								1	1	
22		Plastic Products	2	2	2	**15**						
	31	Leather										

Attachment A

Industry Characteristic Value					
Score	WA Emplmnt-1996	Growth 1995-2005	Ave. wage 1995	Return On Equity	Avg. Assets
3	Over 50,000	Over 20%	Over $40,000	15%+	n/a
2	20,000 to 50,000	10 to 20%	$30 to 40,000	10%-15%	2- $1-$10 mil.
1	Under 20,000	0 to 10%	$20 to 30,000	5%-10%	1- $10-$50 mil.
0	n/a	< 0%	<$20,000	0>5%	0- $50 mil.+

			ECONOMIC FACTORS				INDUSTRY CHARACTERISTICS					
			ECONOMIC FACTORS			Capability		Growth	Average	Capital	Financial	PREFERRED
#	SIC	INDUSTRY CANDIDATE IDEAS	Raw Materials	Business Climate	Quality Of Life	Match Score	Size (Employees)	Potential (% Growth Employees)	Wage ($)	Intensity ($)	Return (%)	INDUSTRY SCORE
			2	2	2							
	32	**Stone, Clay, Glass, Concrete**								1	2	
23		Structural Concrete Products	2	2	1	**11**						
	33	**Primary Metals**					1	0	2	1	2	**6**
24		Smelter	2	3	2	**11**						
25		Titanium	2	2	2	**14**						
26		Aluminum	2	2	2	**14**						
27		Composites	2	2	2	**14**						
	34	**Fabricated Metal Products**					1	3	1	2	2	**9**
28		Heating Equipment	2	2	2	**13**						
29		Construction Components/Systems	2	2	2	**13**						
	35	**Industrial Machinery, Computers**					2	3	1	1	3	**10**
30		Computer Assembly	1	3	3	**13**						
31		Computer Storage Devices	1	3	3	**13**						
32		Machinery Industries	1	3	3	**13**						
	36	**Electronic & Electrical Machinery**					1	2	2	1	2	**8**
33		Radio and TV	1	2	2	**15**						
34		Semiconductors and boards	1	3	3	**12**						
	37	**Transportation Equipment**										
34a		Aerospace (autoclave)	1	2	2	**13**	3	2	3			**8**
35		Boat Building	1	2	2	**14**	1	1	2			**4**
36		Barge Building/Repair	1	2	2	**15**						
37		Rail Equipment	1	2	2	**14**						
38		Misc. Motor Vehicle Parts	1	2	2	**13**						
39		Rail cars	1	1	2	**14**						
40		Train Seats	1	1	2	**14**						
	38	**Instruments**					1	0	3	1	2	**7**
41		Optical	1	2	2	**14**						
42		Medical Appliances, Instruments	1	2	2	**14**						
	39	**Misc. Mfg.**										
43		Jewelry	1	2	2	**15**						
44		Brooms and Brushes	1	2	2	**15**						
45		Sporting Goods	1	2	2	**15**						
		TRANS., COMMUNICATIONS, UTILITIES										
	40	**Railroad***					1	0	3	0	0	**4**
	41	Transit										
	42	**Motor Freight**					2	2	1			**5**
46		General Warehouse and Storage	1	1	1	**14**						
47		Regional Distribution Facility	1	1	1	**13**						
48		Parts Distribution	1	1	1	**13**						
		Other*										
	44	**Water Transportation***					1	0	3	2	2	**8**
	45	**Air Transportation***					2	2	2			**6**
	46	**Pipelines**										
49		Misc.	1	3	1	**14**						
	47	**Transportation Services****								3	1	
50		Location Tracking	0	0	0	**16**						
51		Service Monitoring and Testing	0	0	0	**16**						
52		Maintenance	1	2	2	**14**						
53		Train Test Area	1	2	2	**14**						

Attachment A

Industry Characteristic Value					
Score	WA Emplmnt-1996	Growth 1995-2005	Ave. wage 1995	Return On Equity	Avg. Assets
3	Over 50,000	Over 20%	Over $40,000	15%+	n/a
2	20,000 to 50,000	10 to 20%	$30 to 40,000	10%-15%	2- $1-$10 mil.
1	Under 20,000	0 to 10%	$20 to 30,000	5%-10%	1- $10-$50 mil.
0	n/a	< 0%	<$20,000	0>5%	0- $50 mil.+

			ECONOMIC FACTORS				INDUSTRY CHARACTERISTICS					
#	SIC	INDUSTRY CANDIDATE IDEAS	Raw Materials	Business Climate	Quality Of Life	Capability Match Score	Size (Employees)	Growth Potential (% Growth Employees)	Average Wage ($)	Capital Intensity ($)	Financial Return (%)	PREFERRED INDUSTRY SCORE
			2	2	2							
	48	**Communications**					2	0	3	1	1	**7**
54		Teleport	1	3	3	**13**						
55		Telecommunication Systems	1	3	3	**13**						
56		Space Antennas	1	3	3	**13**						
57		Defense Tracking and Navigation	1	3	3	**13**						
	49	**Utilities**					2	2	3	0	1	**8**
58		Wind Power	1	3	1	**14**						
59		Solar Power	1	3	1	**14**						
60		Land-fill-Contaminated and New	1	2	1	**13**						
61		Recycling	1	2	1	**13**						
62		Resource Recovery Energy	1	2	1	**13**						
63		Coal Handling										
64		Natural Gas										
		WHOLESALE					3	3	2	2	1	**11**
65		Misc. Wholesale Goods	1	2	2	**14**						
66		Mail Order/Internet Sales	1	2	2	**15**						
		RETAIL										
		FINANCE INSURANCE REAL ESTATE										
		SERVICES										
	73	**Business Services**					3	3	2	3	2	**13**
67		Software	1	3	3	**12**						
68		Information Processing (Back Office)	1	3	3	**13**						
	79	**Amusement and Recreation**										
70		River-related										
	80	**Health Services**										
	82	**Education**										
71		Environmental Training	1	3	3	**13**						
	84	**Museums, Botanical, Zoological**										
72		Hanford-related Tourism										
	87	**Engineering. Acctng. Research Mgt.**					3	3	2			**8**
73		Bio-engineering R&D	1	3	3	**13**						
74		Space Systems Design	1	3	3	**13**						
75		Miniaturization	1	3	3	**13**						
76		Metals R&D	1	3	3	**13**						
77		Alternative Energy	1	3	3	**13**						
78		Waste Disposal Management	1	3	3	**13**						
79		Environmental Technologies and Services	1	3	3	**13**						
80		Advanced Ceramics	1	3	3	**13**						
81		Biotechnology	1	3	3	**13**						
82		Bioremediation	1	3	3	**13**						
83		Advanced Materials	1	3	3	**13**						
84		Environmental Molecular Science	1	3	3	**13**						
85		Specialty Research Facilities (Accelerator)	1	3	3	**13**						
		PUBLIC ADMINISTRATION										
86		Essential Public Facilities										
87		State-wide Significant										
		NONCLASSIFIABLE										

*These industry areas are screened as "The Business of Transportation".
**These industry areas will mainly be screened as "The Business of Transportation".
Non-Indulstrial uses were not rated

Attachment B: Industrial Screening Key

	Capability	Requirement
Availability of Sites	**Hanford Specific**	
Very Large (>200 ac)	3-Many Sites	3-Very Important
Large (100-200 ac)	2-Some Sites	2-Somewhat Important
Medium (20-100 ac)	1-Few Sites	1-Not Important
Small (< 20 ac)		
Water	**Hanford Specific**	
	3-Large Volume Available	3-High Processing Volume
	2-Moderate Volume Available	2-Moderate Processing
	1-Limited Volume Available	1-Domestic Only
Wastewater Treatm't	**Hanford Specific**	
	3-Existing Capacity	3-High Processing Volume
	2-Potential Capacity	2-Moderate Processing
	1-Limitations	1-Domestic Only
Natural Gas	**Hanford Specific**	
	3-Existing Capacity	3-High Requirement, Reasonable Price
	2-Potential Capacity	2-Moderate Requirement, Reasonable Price
	1-Limitations	1-Low Requirement
Electricity	**Hanford Specific**	
	3-Existing Capacity	3-High Requirement, Reasonable Price
	2-Potential Capacity	2-Moderate Requirement, Reasonable Price
	1-Limitations	1-Low Requirement
Communication	**Hanford Specific**	
	3-Existing Capacity	3-High Volume, Special Requirement
	2-Potential Capacity	2-Moderate Requirement
	1-Limitations	1-Low Requirement
Highway	**Hanford & Tri Cities**	
	3-Capacity Interstate and Local	3-High Volume
	2-Capacity Interstate	2-Moderate Volume
	1-Limited Capacity	1-Low Volume
Rail	**Hanford & Tri Cities**	
	3-Two Mainline	3-High Volume
	2-One Mainline	2-Moderate
	1-Spur Only	1-Low
Air	**Tri Cities & Region**	
	3-Frequent Scheduled	3-High Volume
	2-Some Scheduled	2-Moderate
	1-Limited Scheduled	1-Low
Unskilled Labor	**Tri Cities & Region**	
	3-Available at Low Cost	3-High Requirement
	2-Available at Moderate Cost	2-Moderate
	1-Limited Availability	1-Low
Skilled Labor	**Tri Cities & Region**	
	3-Available at Low Cost	3-High Requirement
	2-Available at Moderate Cost	2-Moderate
	1-Limited Availability	1-Low
Advanced Degrees	**Tri Cities & Region**	
	3-Many Specialized	3-High Required
	2-Moderate Specialized	2-Moderate
	1-General	1-Low

Market Proximity	**Tri Cities & Region**	
	3-Large Local Market	3-Proximity Important
	2-Moderate Local Market	2-Proximity can be Average
	1-Small Local Market	1-Proximity Not Critical
Raw Materials	**Tri Cities & Region**	
	3-Raw Materials Local	3-Need Raw Materials Local
	2-Raw Materials Near	2-Need Raw Materials Near
	1-Raw Materials Distant	1-Not an Issue
Business Climate	**Tri Cities & Region**	
	3-Low Regulation/Taxation	3-Needs Low Regulation/Taxation
	2-Moderate Regulation/ Taxation	2-Seeks Low Regulation/Taxation
	1-High Regulation/Taxation	1-Not an Issue
Quality of Life	**Tri Cities & Region**	
	3-High Natural and Cultural Amenities	3-Needs High Amenities
	2-Moderate Natural/Cultural Amenities	2-Needs Moderate Amenities
	1-Low Natural and Cultural Amenities	1-Unimportant

Attachment C

FACT SHEET –Industrial Development
Transportation Equipment/Services

Business:	Transportation equipment manufacturing offers market potentials for the Tri-Cities and the Hanford site. Examples include rail car and component manufacturing, locomotive rebuilding and testing and component aircraft parts manufacturing. Transportation services include trucking and storage. Examples are private and for-hire trucking carriers and private fleets owned and operated by businesses whose main purpose is not transportation.
Land Requirements:	From less than 5 to over 200 acres. Large land areas particularly depend on trackage requirements for transportation equipment testing after manufacturing.
On-site Requirements:	Rail or truck-related manufacturing facilities may require a large area for testing rolling stock or vehicles.
Utilities:	Transportation equipment manufacturing will require the availability of all utilities including water, sewer, power, natural gas and communication infrastructure.
Transportation:	Good rail and highway access are critical infrastructure components.
Labor Requirements:	Skilled management, machinists, fabricators and other operators running computerized machinery are required in the manufacturing of transportation equipment. The occupational mix of trucking is heavily oriented toward operatives and labor.
Raw Materials	Not applicable
Market Proximity:	Do not need to be located in a large population center with high industrial land costs

Attchment D

FACT SHEET –Industrial Development
Wholesale/Distribution

Business:	The wholesale trade industry is a large and diverse sector of the economy. The industry is highly fragmented, consisting of a few large firms and many small companies. The products that wholesalers distribute to their customers are supplied by other firms in the manufacturing, agricultural and wholesale sectors of the economy. The wholesale industry consists of merchant wholesalers, manufacturer's sales offices and commissioned agents.
Land Requirements:	Ranges from under 5 acres to over 100 acres.
On-site Requirements:	Divisible warehouse buildings typically offer 24 to 30 foot clear heights, numerous dock-high and roll-up door loading facilities and a relatively low parking requirements--typically 1 to 2 stalls per 1000 square feet.
Utilities:	Wholesale companies will only require domestic water. Their power and gas requirements will not be extensive. Excellent telephone and other computer-based communication systems are very important.
Transportation:	Highway access for trucks and good rail services in the Tri-Cities are very important in order to achieve efficient wholesale/distribution operations.
Labor Requirements:	The wholesale industry is dominated by operatives and laborers (drivers, sorters, graders, stock handlers and hand packers. Unlike retail trade, wholesale trade workers enjoy higher wages than the statewide average. Most Washington state wholesale firms are small, with an average size on 11 employees. Ninety percent of the over 14,000 wholesale establishments statewide have fewer than 20 employees.
Raw Materials	Generally not important.
Market Proximity:	Distributive services like wholesaling are often characterized as "local servicing". However, studies show that growth in wholesale trade need not be derived from growth in local goods production. Employment concentration indexes for the state of Washington suggests that the state produces a surplus in wholesale trade goods for a number of trade sectors. The Tri-Cities may be able to capitalize on this economic opportunity.

Attachment E

FACT SHEET –Industrial Development
Environmental

Business:	The environmental industry is comprised of firms that manufacture equipment for the analysis of air, gas, soil and water and provide related environmental services. Examples include pollution control and prevention equipment for air, water, solid and liquid wastes. Also, companies that provide environmental services such as hazardous and solid waste management, consulting & engineering, remediation and environmental analysis.
Land Requirements:	Environmental manufacturing firms would typically require 20 acres or less. Environmental service firms are located mainly in office buildings requiring sites under five acres.
On-site Requirements:	Large plants manufacturing major pieces of environment equipment typically have a building/land coverage ratio of about forty percent.
Utilities:	Environmental companies will require availability of all utilities including: water/sewer, electricity, natural gas, communications (including fiber optics).
Transportation:	Environmental service companies use both trucking and rail. Environmental service providers are also quite dependent on good air service.
Labor Requirements:	Environmental manufacturing companies would use mostly skilled labor. Environmental service will often require advanced degrees.
Raw Materials	Not an issue.
Market Proximity:	It is expected that this industry cluster would heavily consist of Hanford contractors, subcontractors and Energy Northwest labor and expertise.
Other:	The proximity of advanced materials expertise in the Tri-Cities should complement environmental research and environmental equipment manufacturing.

Attachment F

FACT SHEET –Industrial Development
Energy/Energy Systems

Business:	This industry cluster is an outgrowth of past and existing activities at the Hanford Reservation related to the U.S. Department of Energy, Energy Northwest and private contractors. Activities include production, distribution, and a variety of services related to existing and emerging energy sources. Specific business opportunities might include renewables, distribution, transmission, monitoring, energy generation, super conducting systems, energy storage systems, energy efficiency systems, software control/power management and distributed power generation systems.
Land Requirements:	Ranges from as small as five acres to over 200 acres.
On-site Requirements:	On-site requirements may include: offices, manufacturing facilities, distribution buildings and outside storage.
Utilities:	Energy/energy system companies will require availability of all utilities including: water/sewer, electricity, natural gas, communications (including fiber optics). High quality computer links are a requirement.
Transportation:	Such energy/energy systems companies would mainly cost efficient trucking and rail services.
Labor Requirements:	The energy/energy systems companies would use both unskilled and skilled labor. Energy service providers in the consulting and R&D areas would typically require advanced degrees.
Raw Materials	Alternative energy systems such as cogeneration and biomass and conventional energy equipment have a moderate-to-low need for raw materials in the area.
Market Proximity:	Not a critical factor. Company types such as energy conservation equipment, lighting systems, oil and gas recovery equipment, energy storage and power transmission equipment would not have to be in close proximity.

Attachment G

FACT SHEET-Industrial Development
Low Compatibility Industries

Business:	This business is defined as miscellaneous activities which have real or perceived conflicts with surrounding uses and/or communities. Potential uses include land-fill sites for contaminated or other solid wastes, manufacturing facilities producing large amounts of hazardous wastes, or manufacturing facilities for hazardous products.
Land Parcel Size:	Very large parcels are required to provide adequate buffering.
On-site Requirements:	Facilities size can vary greatly.
Utilities:	Utility requirements will vary greatly depending on specific use.
Transportation:	Truck, rail and in some cases barge access will be needed.
Labor Requirements:	The labor force will be primarily skilled labor, with some general laborers.
Raw Materials:	Raw material requirements will vary greatly depending on specific use.
Market Proximity:	Market proximity is not primary criterion as suitable sites are limited.

Attachment H

FACT SHEET-Industrial Development
Miscellaneous Manufacturing

Business:	This business category includes traditional manufacturing firms already located in Washington State. Target firms are those which are considering Western Washington because of limited land availability, land prices, labor costs, and general cost of living. Promising product categories include fabricated metal products, industrial machinery, electronic and electrical equipment, instruments, and such categories as sporting goods and jewelry.
Land Parcel Size:	Generally medium to large size sites of 20 to 200 acres.
On-site Requirements:	Manufacturing facilities vary greatly in size.
Utilities:	Primary requirement for assembly activities is moderate amounts of power.
Transportation:	Require rail and highway access.
Labor Requirements:	Skilled labor force
Raw Materials:	Materials and components from regional suppliers.
Market Proximity:	Regional, national, and international market areas.

Attachment I

FACT SHEET-Industrial Development
Information/Communication

Business:	This business builds on strong local resources in computer sciences and systems, information sciences and systems, multimedia services, and telecommunications. Activities include systems development, hardware production and assembly, communications facilities and services. Development of technologies and facilities for communication networks.
Land Parcel Size:	20 acres is a typical size.
On-site Requirements:	Production and research facilities with 100,000 square feet or less.
Utilities:	Special utilities include broadband communications capacity.
Transportation:	Truck access important for production facilities.
Labor Requirements:	Require skilled labor force for production activities. Advanced degrees important for research and development efforts.
Raw Materials:	
Market Proximity:	Not an important factor

Attachment J

FACT SHEET-Industrial Development
Advanced Materials

Business:	materials industries in the area. Includes metals such as aluminum and titanium as well as plastics and processes include forming, casting, finishing, molding, die-casting, and extrusion.
Land Parcel Size:	20 acres is a typical size needed.
On-site Requirements:	100,000 square foot manufacturing facility is representative of the industry.
Utilities:	Low cost power is major factor for melting facilities. Some process water required. Domestic water requirement.
Transportation:	Highway and rail access are important.
Labor Requirements:	Require skilled labor force for production activities. Advanced degrees important for research and development
Raw Materials:	Aluminum plants in eastern Washington.
Market Proximity:	Boeing production facilities. Truck manufacturing in western Washington
Other:	Local research and educational facilities are important.